

## Patent Claims

1           1. A pulse sound transducer for the ultrasonic range for  
2 use either as a transmitter or as a receiver with an elementary  
3 block composed of piezoelectric material,  
4 characterized in that,

5           the height of the elementary block composed of  
6 piezoelectric material of the transducer is greater than its width  
7 and the block at the output end for the pulse has a shoulder so  
8 formed thereon that a smooth output surface is formed for the sound  
9 wave, and in longitudinal sections has a T-shape, whereby the base  
10 polarization runs perpendicularly to the output surface and the one  
11 electrode is provided on the output surface while the other runs  
12 above the shoulder on the block.

1           2. The pulse sound transducer according to claim 1,  
2 characterized in that,  
3 the block is configured as a round or polygonal column,  
4 cone or pyramid and the shoulder is matched thereto  
5 correspondingly.

1           3. The pulse sound transducer according to claim 1 or 2,  
2 characterized in that,

the proportions of the elemental sell are selected as follows:

$a/b/h = 1/4-6/10$ , whereby  $a$  is the thickness of the shoulder,  $b$  the diameter or the width of the block and  $h$  the height of the total cell.

4. The pulse sound transducer according to <sup>claim 1</sup> ~~one or more~~  
~~of the preceding claims~~,  
characterized in that,  
the elementary cell after shaping has an additional  
radial polarization by the application of a high voltage.

5. The pulse sound transducer according to <sup>claim 1</sup> ~~one or more~~  
~~of claims 1 to 4~~,  
characterized in that,  
the transducer is assembled from a plurality of  
elementary cells, whereby the cells have electrodes around the  
columns or the like longitudinal structures, although the totality  
of the cells has an electrode on the total output surface for the  
pulses.